

**AMENDMENTS TO THE CLAIMS:**

1-123 (Cancelled).

124. (Currently amended) A process for preparing a medical implant having an improved balance of wear properties and oxidation resistance comprising the steps of:

irradiating a ~~preform of~~ fabricated article comprising ultrahigh molecular weight polyethylene to form free radicals in the ultrahigh molecular weight polyethylene;

~~annealing the irradiated preform by~~ heating the fabricated article in a substantially oxygen-free atmosphere at to a temperature above about 150°C, for a time sufficient to recombine substantially all of the free radicals and cross-link the ultrahigh molecular weight polyethylene;

cooling the cross-linked ~~preform~~ fabricated article while maintaining a substantially oxygen-free atmosphere;

forming a medical implant from the cross-linked ~~preform~~ fabricated article;

and

sterilizing the implant using standard means.

125. (Currently amended) A process for preparing a medical implant having an improved balance of wear properties and oxidation resistance comprising the steps of:

irradiating a ~~preform~~ fabricated article comprising of ultrahigh molecular weight polyethylene to form free radicals in the ultrahigh molecular weight polyethylene;

~~annealing the irradiated preform by~~ heating the fabricated article in a substantially oxygen-free atmosphere at to a temperature above about 150°C, to cross-link the ultrahigh molecular weight polyethylene;

cooling the cross-linked ~~preform~~ fabricated article while maintaining a substantially oxygen-free atmosphere; and

forming a medical implant from the cross-linked ~~preform~~ fabricated article.

126. (Previously presented) A medical implant prepared according to the process of claim 124.

127. (Previously presented) A medical implant prepared according to the process of claim 125.

128. (Currently amended) A cross-linked ultrahigh molecular weight polyethylene (UHMWPE) having a swell ratio of less than about 5 and has a degree of oxidation ranging from about 0.01 to about 0.15 at a depth of between about 20 µm to about 3 mm of the cross-linked UHMWPE, wherein the cross-linked UHMWPE is made by the process according to claim 147.

129. (Previously presented) A medical implant comprising the ultrahigh molecular weight polyethylene of claim 128.

130. (Currently amended) A process for preparing a medical implant having an improved balance of wear properties and oxidation resistance comprising the steps of:

irradiating a ~~preform~~ fabricated article ~~of~~ comprising ultrahigh molecular weight polyethylene to form free radicals in the ultrahigh molecular weight polyethylene;

~~annealing the irradiated preform~~ by heating at the fabricated article to a temperature at or above about 150°C, for a time sufficient to recombine substantially all of the free radicals and cross-link the ultrahigh molecular weight polyethylene;

cooling the cross-linked ~~preform~~ fabricated article;

forming a medical implant from the cross-linked ~~preform~~ fabricated article;

and

sterilizing the implant using standard means.

131-142 (Cancelled).

143. (Currently amended) A process for preparing a medical implant having improved wear and oxidation resistance ~~mechanical properties~~, wherein the method comprises:

irradiating ~~a polyethylene~~ a fabricated article comprising ultrahigh molecular weight polyethylene to form free radicals in the ultrahigh molecular weight polyethylene;

heating the ~~polyethylene~~ fabricated article to a temperature at or above the melting point such that the free radicals can recombine, thereby forming a cross-linked ~~polyethylene~~ fabricated article;

forming an implant from the cross-linked ~~polyethylene~~ fabricated article; and

sterilizing the implant using standard means.

144. (Currently amended) The process according to claim 143, wherein the standard means ~~for sterilizing the implant~~ include heat.

145. (Currently amended) The process according to claim 124, wherein the standard means ~~for sterilizing the implant~~ include heat.

146. (Currently amended) The process according to claim 130, wherein the standard means ~~for sterilizing the implant~~ include heat.

147. (New) A process for preparing a medical implant having improved wear and oxidation resistance, wherein the method comprises:

irradiating and melting a fabricated article comprising ultrahigh molecular weight polyethylene in order to form free radicals in the ultrahigh molecular weight polyethylene and cross-link the ultrahigh molecular weight polyethylene and then allowing the fabricated article to cool; and

forming an implant from the cross-linked fabricated article.

148. (New) The process according to claim 147, further comprising sterilizing the implant using standard means.

149. (New) The process according to claim 148, wherein the standard means include heat.